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Self-Generated Attitude Change: Dispositional and Situational Determinants of Discounting

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SELF-GENERATED ATTITUDE CHANGE: DISPOSITIONAL AND SITUATIONAL DETERMINANTS OF DISCOUNTING

by

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Abstract

A trait-based impression formation task was used to investigate whether inconsistency discounting is one of the cognitive processes that produce self-generated attitude polarization. Three predictions were made. First, attitude polarization would increase as opportunity for thought increased. Second, inconsistency discounting would also increase as opportunity for thought increased. Third, the relationship between discounting and opportunity for thought would differ with individual differences in need for closure, need for structure, and intolerance of ambiguity. The results did not support the predictions. In contrast with the findings of previous self-generated attitude change investigations, differential opportunity for thought did not affect attitude change. Explanations for the results and directions for future research are discussed.

Self-Generated Attitude Change:

Dispositional and Situational Determinants of Discounting

People are frequently forced to make decisions based on discrepant information. Consider the following scenario: As the car you are driving approaches an intersection, you notice that the malfunctioning traffic signal is simultaneously red and green. In this circumstance, one piece of information (hopefully the red light) may be more salient than the other piece of information. You might decide to obey the red light and ignore the green light altogether. Alternatively, you might compromise by simply slowing and looking both ways rather than stopping. What if we complicate this scenario by adding a stop sign and a police officer who is giving you the "halt" hand signal? In this case, the green light might be dismissed. In all of the above scenarios, the content and the context of the information determines the decision.

A similar decision process takes place when we form impressions of people. Our attitude toward a given individual depends on our interpretations of the information we have about that individual. When the pieces of information we receive are believable and consistent, our attitude toward that individual should reflect the feelings we have about the information content. However, we are sometimes forced to evaluate others on the basis of inconsistent information. What effect does this inconsistency have on the process of attitude formation? This research considers how individuals deal with inconsistencies during the process of impression formation.

Following the attributes x evaluation model of attitude structure, attitudes are largely the affective product of beliefs (McGuire, 1985). Our overall impression of (i.e., attitude toward) a person can be conceived as a summation of the various

affective components of the beliefs we hold regarding that person. However, this impression is not based on all of our beliefs about the person but on those beliefs that are salient (Ajzen, 1991; Tesser, 1978).

Beliefs are subject to change; these changes are often guided by an evaluative consistency principle (Tesser, 1978). In general, the more time an individual spends thinking about a particular stimulus, the more consistent and less ambivalent the individual's beliefs about that stimulus become. If attitudes are the product of our beliefs, as our beliefs become more consistent and less ambivalent, our attitudes should become more polarized. Regardless of the nature of the attitude object, this functional relationship between thought, beliefs, and attitudes has been confirmed in numerous studies of self-generated attitude change. As an individual's opportunity for thought regarding a particular attitude object increases, the individual's attitude toward that object tends to polarize (see Tesser, 1978 for a review).

It is important to note, however, that attitude polarization is not the inevitable result of extended thought. The presence of the attitude object during thought creates a "reality constraint" which restricts beliefs and attenuates the polarization process (Tesser, 1976; Tesser, Martin, & Mendolia, 1995). Memories are imperfect and subject to change; therefore, attitudes based on memories should vary more than attitudes based on objective reality.

"Process constraints" also reduce the likelihood that increased thought will result in attitude polarization. Process constraints lead those engaging in thought to reflect on the derivation of their beliefs. If hindsight reveals flaws in the derivation of

beliefs, these beliefs may be disregarded or reinterpreted. This questioning of beliefs reduces the strength of the attitudes that stem from these beliefs (Tesser, Leone, & Clary, 1978; Tesser, Martin, & Mendolia, 1995).

Clearly, thought can influence attitudes in several different ways. In many cases, thought leads to attitude polarization. The relationship between thought and attitude polarization can be explained by the trend toward cognitive consistency but the processes that lead to this cognitive consistency are less well understood. Three hypotheses have been cited to explain the cognitive processes that lead to increased evaluative consistency and attitude polarization: generation, reinterpretation, and discounting (Tesser & Cowan, 1977). The generation hypothesis holds that beliefs become more consistent through the generation of new attitude-consistent beliefs. In support of this hypothesis, Sadler and Tesser (1973) found that opportunity for thought led subjects to increase attitude-consistent thoughts but the opportunity for thought did not lead to an increase in attitude-inconsistent thoughts.

The reinterpretation hypothesis holds that inconsistent beliefs are reinterpreted to make them more consistent with the initial attitude (e.g., Anderson, 1971). This explanation emphasizes the importance of the context; the content of an attitude-inconsistent belief is changed to better match the context of attitude-consistent beliefs. Tesser and Cowan (1977) found evidence indicating that ambiguous traits were reinterpreted during thought when accompanied by traits that were uniformly positive or negative.

The discounting hypothesis proposes that thought may allow individuals to

functionally lose or suppress attitude-inconsistent beliefs. Manifestations of such an effect would include the actual loss of certain beliefs (i.e., beliefs are irretrievable) or the reduction of the influential weight (i.e., discounting) assigned to certain beliefs (Tesser & Cowan, 1977). Although researchers have yet to demonstrate that increased thought leads to inconsistency discounting, evidence for inconsistency discounting has been provided in past impression formation studies (e.g., Anderson & Jacobson, 1965). One of the main goals of the present research is to determine whether the discounting hypothesis is an accurate explanation for self-generated attitude change.

As Tesser (1978) has noted, these three hypotheses are not mutually exclusive. It is possible and perhaps likely that some individuals might be more inclined to generate new beliefs, whereas other individuals may tend to reinterpret or discount existing beliefs. Some individuals might favor two of these three processes while others might use all three processes equally. Just as the likelihood of trait reinterpretation or discounting during impression formation depends on the meaning of the trait and the context in which that trait is placed, trait reinterpretation or discounting may also depend on the nature of the individual forming the impression. Some individuals are more tolerant of inconsistent or ambiguous information than others. Those who tolerate discrepant information are less motivated to alter their cognitive representation of inconsistencies. On the other hand, individuals whose cognitive processes require high levels of consistency may try to discount the validity of the inconsistent information (Chaiken & Yates, 1985). The present study examines three distinct individual difference measures that may influence cognitive strategies for

handling inconsistencies: need for closure, need for structure, and intolerance of ambiguity.

The need for closure has been described as an individual's desire for confident knowledge and an aversion toward ambiguity (Kruglanski & Webster, 1996). When forming impressions, individuals with a high need for closure should prefer conclusive and consistent information about the attitude object; the more conclusive the information, the better. The saying "you never get a second chance to make a first impression" is especially accurate when the person forming the first impression has a high need for closure. Evaluations made by high need for closure individuals should be swift and absolute. It follows that such individuals would avoid information that compromises their ability to bring closure to their attitudes. Individuals low in the need for closure are motivated to keep an open mind. They should welcome any new information, whether that information supports their existing beliefs or not. Low need for closure individuals would be expected to approach evaluative tasks with a wait and see approach. It may be difficult for low need for closure persons to maintain their initial positions in the face of contradictory information.

The need for structure construct examines individual differences in motivation to organize thoughts in simple and unambiguous ways (Neuberg & Newsom, 1993). Persons with a high need for structure tend to avoid anything that might complicate their cognitions. Such individuals strive to maintain status quo; they are motivated to avoid change. An individual high in the need for structure would likely be troubled by isolated beliefs that complicate the structure of their overall attitude. Such individuals

may be more willing to avoid inconsistent information to preserve the simplicity of their cognitive representations. Persons with low need for structure should not be troubled by information that complicates their thought processes. These individuals should be more likely to alter and complicate their cognitive representation of an attitude object to include a deviant belief. Low need for structure individuals should be perfectly willing to entertain thoughts that cannot easily be categorized according to existing beliefs.

Intolerance of ambiguity has been a popular psychological construct for more than forty years. Persons with low intolerance of ambiguity consider ambiguous information challenging, desirable, and interesting (Furnham, 1994). Given a choice between ambiguous and concrete information, individuals with low intolerance of ambiguity should choose ambiguity. Individuals with high intolerance of ambiguity tend to feel threatened by ambiguous information and will thus avoid such information (Budner, 1962). Affectively inconsistent information produces attitude ambiguity; therefore, persons with high intolerance of ambiguity should ignore or redefine ambiguous information. Persons with low intolerance of ambiguity should not be highly motivated to alter their beliefs toward consistency.

A certain degree of conceptual overlap exists between measures of ambiguity intolerance, need for closure, and need for structure. Viewed from the narrow perspective of the present study, which concerns inconsistent traits, these three constructs are similar but independent. Unlike high need for closure individuals, who avoid ambiguous information because it makes quick, confident decisions more

difficult, high need for structure individuals avoid ambiguous information because it is difficult to categorize. Persons with low need for closure and persons with low need for structure may accept ambiguity, but they do not prefer ambiguity as persons with low intolerance of ambiguity do. Individuals with high need for closure and individuals with high need for structure also tend to avoid ambiguity but they do not specifically detest ambiguity; rather, they detest anything that interferes with their closure and structure motives. Thus, the personality characteristics described by each of these constructs are distinct.

From a psychometric standpoint, these three measures seem to tap separate personality dimensions. Webster and Kruglanski (1994) found a low correlation between their Need for Closure Scale and Eysenck's (1954) Intolerance of Ambiguity Scale. Webster and Kruglanski also found a low correlation between their Need for Closure Scale and the Personal Need for Structure Scale (Neuberg & Newsom, 1993). Neuberg and Newsom (1993) concluded that the Personal Need for Structure Scale and Eysenck's Intolerance of Ambiguity scale were also distinct measures.

The present study seeks to determine the strategies individuals use to deal with inconsistencies during thought. Previous research indicates that thought-induced attitude polarization is partly the result of the generation of attitude-consistent beliefs and the reinterpretation of inconsistent beliefs. This study was designed to discover whether inconsistency discounting also contributes to thought-induced attitude polarization.

The hypotheses of this study are as follows. First, in accordance with previous

investigations of self-generated attitude change, attitude polarization should generally increase with increased opportunity for thought. Second, in accordance with the evaluative consistency interpretation of self-generated attitude change, inconsistent belief discounting should occur more often given high opportunity for thought, compared with low opportunity for thought. Third, for reasons earlier detailed, individuals with high need for closure, high need for structure, or high intolerance of ambiguity should be more likely than individuals with low need for closure, low need for structure, or low intolerance of ambiguity to discount inconsistent beliefs and experience thought-induced attitude polarization. These individual differences should be greater following high opportunity for thought compared with low opportunity for thought.

Method

Participants

Seventy-two undergraduates (48 women and 24 men, mean age = 26.5 years), each of whom were taking a course in personality theories or social psychology, volunteered to participate. Each volunteer received extra-credit in exchange for participation. Informed consent was obtained before participation and all participants were treated in accordance with the ethical standards of the American Psychological Association.

Materials

Using Anderson's (1968) trait likableness ratings, 60 highly likable trait-descriptive adjectives and 60 highly dislikable trait-descriptive adjectives were printed

on thirty 7.6 x 12.7 cm index cards. In Anderson's study, traits were rated using a scale with endpoints of 0 (extremely dislikable) and 6 (extremely likable). The highly likable traits used in this study received Anderson ratings of at least 4.8; the highly dislikable traits received Anderson ratings of 1.1 or lower. Fifteen cards contained three positive traits and one negative trait; fifteen cards contained three negative traits and one positive trait. The four traits on each card were arranged vertically and the odd (with respect to likableness) trait was always located between the other three traits. Half the cards displayed the odd trait as the second trait from the top; the other half of the cards displayed the odd trait as the third trait from the top. Traits were assigned to each position on each card using a random number table. After all of the traits had been randomly assigned, each card was reviewed to ensure that no card contained contradictory traits (e.g., mean and nice). If a card contained contradictory traits, the odd trait from that card was exchanged with the odd trait from the next card in the deck.

Three personality measures, the 42-item Need for Closure Scale (Kruglanski, Webster, & Klem, 1993), M. Thompson et. al.'s 12-item Personal Need for Structure Scale (as cited in Neuberg & Newsom, 1993), and Budner's (1962) 16-item Intolerance of Ambiguity Scale, were combined into a single, 70-item questionnaire. All items required participants to respond according to a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).[1] After reverse scoring negatively worded items, the responses for each item were summed. Participants were categorized as high or low in each of the three personality dimensions by median split procedures. A random

number table was used to determine the order of each question within each scale. The order of questions within each scale was the same for each participant. The order of scales within the questionnaire was as follows: Need for Structure, Need for Closure, and Intolerance of Ambiguity.

Procedure

After being individually greeted and seated, participants were told that they would be asked to spend some time forming impressions of other people based on descriptive traits. Participants were also told that they would be asked to complete a self-descriptive questionnaire. The experimenter explained that the study was designed to answer unanswered questions about how people form impressions. Finally, participants were told that their participation was strictly voluntary, that they could leave at any point in the proceedings without fear of penalty, and that their identity would not be revealed. If participants had no further questions, they were then given time to read and sign an informed consent form that repeated the explanations described above.

After consent was given, the experimenter explained the use of a 15-point "overall impression scale" with endpoints labeled +7 (extremely positive) and -7 (extremely negative), intermediate points labeled +4 (moderately negative) and -4 (moderately positive), and a midpoint labeled 0 (neutral). Examples of various hypothetical positive and negative impressions and the appropriate corresponding impression ratings were provided. No further instructions were given until participants stated their understanding.

Participants were then told that they would be viewing thirty person descriptions (index cards) and that they would be asked to rate each person according to the overall impression scale. They were informed that they would only have a few seconds to form each initial impression. Participants were instructed to ask the experimenter for clarification if the meaning of any descriptive words was unclear. Participants were asked to indicate their impression rating aloud to the experimenter after each description was shown.

The order of person description presentation was randomized for each participant by shuffling the index cards before each session. The overall impression scale was clearly visible to participants during each initial impression rating. After each impression rating was announced, the experimenter withdrew the description and recorded the rating in the appropriate space provided on a coding sheet that could not be read by participants. A small identification number was printed on the back of each index card so the experimenter could easily match the rating with the corresponding description.

After all thirty descriptions were rated, the experimenter randomly selected two descriptions with +4 ratings and two descriptions with -4 ratings. If an insufficient number of +4 or -4 ratings were provided, the description with next closest rating (e.g., +3 or -3) was substituted. Participants were then told that they would be given more time to reflect on some of the descriptions that they had just rated. Specifically, they were told:

> Concentrate all your thoughts on this person during the time I give you. You might want to think about people you know who fit this description. Or you might want to think about what other qualities and traits people like this may have. Just concentrate on this description and continue thinking until I tell you to stop.

After hearing these instructions, the participant was shown the description they would be thinking about. The order (i.e., positive vs. negative initial rating) of the four descriptions presented for extended thought was counterbalanced between subjects. The participant was given six seconds to read the description before the description was removed from sight. Opportunity for thought (15 or 90 sec) was predetermined by random assignment. Each participant received the same duration of time for thought for all four descriptions.

When the allotted time for thought had expired, participants were told:

> Now that you've had some time to collect your thoughts, I'd like you to once again indicate your impression of the person described on the card. Sometimes people's impressions change even in a short period of time such as this. Of course, you may or may not feel the same way about this person. Using this scale like before, indicate your impression of this person now.

The experimenter then reintroduced the overall impression scale and asked participants

to indicate aloud their overall impression rating. Participants could view the scale while making their judgment but they were not permitted to see the description. The experimenter recorded their impression rating on the coding sheet.

In the next experimental phase, participants were asked to describe the thought processes that led to their impression rating. As soon as participants indicated their post-thought impression, they were told:

> You were just asked to indicate your overall impression of an individual on the basis of four traits. It may be that all four traits equally influenced your decision to give the rating that you did. Of course, it may be that some traits influenced your rating more than others. I want you to indicate how much each of the four descriptive traits influenced your overall impression rating.

The experimenter then explained the use of the 10-point "trait influence scale" with endpoints labeled 0 (no influence) and 10 (only influence), intermediate points labeled 3 (slight influence) and 7 (strong influence), and a midpoint labeled 5 (moderate influence). Examples of influential and non-influential traits were provided. No further instructions were given until participants stated their understanding.

Next, the person description that the participant had just spent time thinking about and rating was placed in front of the participant along with the trait influence scale. Starting with the trait at the top of the index card and moving down, the experimenter then asked participants to rate how much each trait influenced their

overall impression. The rating for each trait was indicated aloud and recorded by the experimenter on the coding sheet before moving to the next trait. The person description was visible to the participant at all times during the trait influence rating procedures. After the fourth and final trait in the description was rated, the same procedures (i.e., thought, impression re-rating, trait influence rating) were repeated for each of the remaining person descriptions.

After overall impression re-ratings and trait influence ratings were provided for all four person descriptions, participants were asked to complete the aforementioned 70-item questionnaire. Prior to administration, the experimenter described the 5-point scale used for indicating agreement or disagreement and provided examples. Participants were told to answer all questions and to take as much time as they wished.

When the questionnaire was completed, the experimenter asked the participants to explain what they thought the purpose of the study might be. The experimenter then explained all hypotheses and the purposes of the procedures. Finally, participants were asked not to discuss the study with potential participants, thanked, and dismissed.

Dependent Measures

Attitude Change

Attitude change was scored using a trichotomous coding system. If initially positive attitudes (e.g., +4) later became more positive (e.g., +6) or if initially negative attitudes (e.g., -4) later became more negative (e.g., -5), attitude change was scored as +1. If initially positive attitudes (e.g., +4) later became less positive (e.g., +2) or if initially negative attitudes (e.g., -4) later became less negative (e.g., -3),

attitude change was scored as -1. Attitudes that did not change were scored as 0. Scores were summed across all four descriptions to form a composite index of attitude change for each participant.

Because of the design of the 15-point overall impression scale used in this study, a trichotomous measure of attitude polarization is preferable to an algebraic measure that subtracts the pre-thought rating from the post-thought rating. In this study, an algebraic measure would be more sensitive to depolarization than polarization. For example, if the pre-thought attitude rating was +4, only 3 numbers (+5, +6, +7) of the 15 numbers provided for post-thought attitude ratings would indicate attitude polarization while 11 numbers (+3, +2, +1, 0 to -7) would indicate attitude depolarization. Because of this depolarization bias, one instance of strong depolarization (e.g., +4 pre-thought, -7 post-thought) would cancel out three instances of strong polarization (e.g., +4 pre-thought, +7 post-thought) if an algebraic measure were used. Stated another way, the attitude scale used in this study was designed to assess whether or not attitude change occurred; the study was *not* designed to assess the magnitude of attitude change (see Tesser, 1978, for a more detailed discussion of attitude change indices).

Discounting

Recall that each person description contained four traits, one of which was inconsistent with the other three in terms of positivity or negativity. Discounting was scored by summing each trait influence rating for the inconsistent trait in each of the four person descriptions so that each participant received a single discounting score.

The lower the total discounting score, the stronger the evidence of discounting. In other words, an individual who gave a zero trait influence rating for all four inconsistent traits would receive the lowest possible discounting score, meaning that this individual exhibited a strong tendency toward discounting.

Results

Analyses of variance

Attitude polarization. The central hypothesis of this study was that attitude polarization should be more prevalent following a longer rather than a shorter opportunity for thought. It was also hypothesized that, given ample opportunity for thought, individuals with high need for closure, high need for structure, and high intolerance of ambiguity would exhibit more thought-induced attitude polarization than individuals with low need for closure, low need for structure, and low intolerance of ambiguity. In sum, an interaction between opportunity for thought and each of the three personality variables was expected.

A 2 (opportunity for thought) x 2 (personality difference) ANOVA with attitude change as the dependent variable was conducted separately for need for closure, need for structure, and intolerance of ambiguity. The expected main effect of opportunity for thought failed to materialize in all three analyses, all Fs $(1, 68) < 1$, all ps = ns. The amount of time provided for contemplation did not influence the likelihood of attitude polarization. Furthermore, none of the three personality measures, alone or in combination with thought opportunity, influenced attitude polarization, all Fs $(1, 68) < 1$, all ps = ns. In sum, the results did not replicate the self-generated attitude

effect. None of the hypotheses regarding the effects of opportunity for thought and personality differences on attitude polarization were supported.

Discounting. It was hypothesized that more inconsistent belief discounting should occur in the high opportunity for thought condition than in the low opportunity for thought condition. It was also expected that, given ample opportunity for thought, individuals with high need for closure, high need for structure, and high intolerance of ambiguity should discount more than individuals with low need for closure, low need for structure, and low intolerance of ambiguity. In sum, an interaction between opportunity for thought and each of the three personality variables was expected.

A 2 (opportunity for thought) x 2 (personality difference) ANOVA with discounting as the dependent variable was conducted separately for each of the three personality measures. The expected main effect of opportunity for thought failed to materialize in all three analyses, all Fs $(1, 68) < 1$, all ps = ns. Discounting scores did not differ significantly in high and low opportunity for thought conditions. Furthermore, none of the individual differences, alone or in combination with thought opportunity, affected discounting significantly, all Fs $(1, 68) \leq 2.64$, all ps = ns. In sum, the results suggest that inconsistency discounting is unaffected by differential thought opportunity or the three personality factors here considered.

It is also possible to measure discounting by comparing consistent trait influence ratings with inconsistent trait influence ratings. To make this comparison, a single consistent trait influence score and a single inconsistent trait influence score was calculated for each participant. The consistent trait influence score was obtained by

summing the average consistent trait influence ratings across each person description. A 2 (opportunity for thought) x 2 (personality difference) x (2) (consistent vs. inconsistent trait influence score) ANOVA was conducted for each of the three personality measures.

No significant effects involving need for closure or intolerance of ambiguity were found, all Fs (1, 68) $\leq$ 1.20, all ps = ns. However, the need for structure analysis yielded a significant three-way interaction, F (1, 68) = 4.01, $p < .05$. Given low opportunity for thought, high need for structure individuals discounted inconsistent traits more (M = 13.00, SD = 6.04) than low need for structure individuals (M = 17.00, SD = 5.90); high need for structure individuals discounted consistent traits less (M = 24.58, SD = 4.33) than low need for structure individuals (M = 22.33, SD = 4.79). Given high opportunity for thought, high need for structure individuals discounted inconsistent traits less (M = 15.05, SD = 5.35) than low need for structure individuals (M = 14.71, SD = 5.31); high need for structure individuals discounted consistent traits less (M = 24.21, SD = 5.10) than low need for structure individuals (M = 24.10, SD = 2.97). In sum, discounting differences between low and high need for structure individuals were greater in the low opportunity for thought condition than in the high opportunity for thought condition. This pattern of results was the opposite of the expected outcome.

Analyses of covariance

Attitude polarization. The results of a recent self-generated attitude change study (Wallace & Leone, 1997) suggest that individuals who are dispositionally

inclined toward extreme initial attitudes are more likely than individuals who are not so inclined to show attitude polarization following thought. To investigate whether initial attitude extremity influenced thought-induced attitude polarization in the present study, an initial attitude extremity score was calculated for each participant by summing the absolute value of their 30 initial impression ratings. Three 2 (opportunity for thought) x 2 (personality difference) ANCOVAs were performed with attitude change as the dependent variable and initial attitude extremity scores as the covariate.

The absence of effects for thought opportunity and personality differences in the ANCOVA analyses, all $\underline{F}$s (1, 68) < 1, all $\underline{p}$s = ns, mirrored the findings of the ANOVAs described earlier. However, the ANCOVAs did reveal a significant effect of initial attitude extremity on attitude change, all $\underline{F}$s (1, 68) ≥ 5.39, all $\underline{p}$s $< .05$. The relationship between initial attitude extremity and attitude change was as follows: The greater the extremity of an individual's initial attitudes, the greater the possibility that the individual would experience further attitude polarization following thought.

Correlation analyses demonstrated that the inclusion of initial attitude extremity as a covariate was appropriate. In fact, initial attitude extremity was an ideal covariate because initial attitude extremity was significantly correlated with the dependent variable (attitude change), $\underline{r} = +.28$, $\underline{p} < .05$ but was not correlated with opportunity for thought, $\underline{r} = -.13$, $\underline{p}$ = ns, or any of the personality measures, all $\underline{r}$s positive and $\leq +.16$, all $\underline{p}$s = ns.

Discounting. Because discounting and attitude polarization are potentially related processes, analyses were conducted to determine whether the initial attitude

extremity variable that influenced attitude polarization would also influence discounting. Three 2 (opportunity for thought) x 2 (personality difference) ANCOVAs were performed with discounting as the dependent variable and extremity scores as the covariate. The inclusion of a covariate proved unnecessary because the ANCOVA analyses determined that initial extremity had no effect on discounting, all Fs (1, 68) < 1, all ps = ns. As was the case in the ANOVA analyses, discounting was not influenced by opportunity for thought or personality differences in any of the ANCOVA analyses, all Fs (1, 68) ≤ 2.61, all ps = ns.

Interrelation of dependent measures

According to the hypotheses, thought-induced attitude polarization occurs in part because attitude-inconsistent beliefs are discounted during thought. Therefore, a relationship between attitude polarization and discounting was expected. Specifically, more discounting should occur when attitudes polarize and less discounting should occur when attitudes do not polarize. Recall that the lower the discounting score, the greater the evidence of discounting. Therefore, a negative correlation coefficient represents the expected relationship between attitude polarization and discounting.

Correlation analyses revealed that measures of attitude change and discounting were negatively correlated, $r = -.42$, $p < .01$, in the high opportunity for thought condition. In the high opportunity for thought condition, individuals who exhibited attitude polarization also tended to exhibit discounting; individuals who did not exhibit attitude polarization did not tend to exhibit discounting. In the low thought opportunity condition, attitude change and discounting were negatively correlated but not

significantly so, $r = -.12$, p = ns. Therefore, no reliable relationship between attitude polarization and discounting was found in the low thought opportunity condition. Nonetheless, the direction of the correlation was as expected.

Interrelation of personality measures

Prior research has found low correlations between measures of need for closure, need for structure, and intolerance of ambiguity (e.g., Neuberg & Newsom, 1993; Webster & Kruglanski, 1994). To ensure that these personality measures were indeed tapping distinct personality dimensions in the present study, several correlation analyses were performed using the full range of scores for each personality dimension. Correlation analyses revealed that the three personality measures were each tapping similar aspects of personality. Need for closure correlated highly with need for structure, $r = .75$, $p < .001$. Need for structure correlated highly with intolerance of ambiguity, $r = .60$, $p < .001$. Intolerance of ambiguity correlated highly with need for closure, $r = .76$, $p < .001$. In sum, the three personality measures used in this study were highly redundant.

Personality measure subscales

To this point, the Need for Closure Scale, the Personal Need for Structure Scale, and the Intolerance of Ambiguity Scale have been treated as unidimensional instruments. It is also possible to separate each of these personality measures into subscales. The two Personal Need for Structure Scale subfactors (Neuberg & Newsom, 1993) and two of the five Need for Closure Scale subfactors (Webster & Kruglanski, 1994) were analyzed separately. Three Need for Closure Scale subfactors

(decisiveness, discomfort with ambiguity, closed-mindedness) were excluded from the analysis because of validity and reliability concerns (see Neuberg, Judice, & West, 1997). Neuberg et. al. also questioned the discriminative validity of the two Need for Closure Scale subfactors (preference for order, preference for predictability) that were included in the analyses. The Personal Need for Structure Scale subfactors were desire for structure (4 items) and response to lack of structure (7 items). The two subfactors of interest from the Need for Closure Scale were preference for order (10 items) and preference for predictability (8 items). Correlation analyses revealed that all four subfactors were highly correlated, all $\underline{r}s > +.70$, all $\underline{p}s < .001$.

Before conducting the analyses of variance, median splits were used to categorize individuals as high or low in each of the four personality subfactors. A 2 (opportunity for thought) x 2 (personality difference) ANOVA was conducted separately for each of the two need for closure subfactors. Neither preference for order nor preference for predictability, alone or in combination with thought opportunity, influenced either attitude change or discounting, all $\underline{F}s < 1$, all $\underline{p}s$ = ns.

In addition, a 2 (opportunity for thought) x 2 (personality difference) ANOVA was conducted separately for each of the need for structure subfactors. Desire for structure, alone or in combination with thought opportunity, did not influence attitude change, all $\underline{F}s\ (1, 68) < 1$, all $\underline{p}s$ = ns. However, when discounting scores were compared, the interaction of desire for structure and thought opportunity approached significance, $\underline{F}\ (1, 68) = 3.07$, $\underline{p} < .10$. In the low opportunity for thought condition, high desire for structure individuals discounted more ($\underline{M}$ = 13.28, $\underline{SD}$ = 5.76) than

low desire for structure individuals (M = 17.17, SD = 6.20). In the high opportunity for thought condition, high desire for structure individuals discounted less (M = 15.26, SD = 5.22) than low desire for structure individuals (M = 14.47, SD = 5.43).

The response to lack of structure subfactor, alone or in combination with thought opportunity, did not influence discounting, all Fs (1, 68) < 1, all ps = ns. However, when attitude change scores were compared, the interaction of response to lack of structure and thought opportunity was marginally significant, F (1, 68) = 3.99, p < .05. In the low opportunity for thought condition, high response to lack of structure individuals exhibited more attitude polarization (M = 1.10, SD = 1.37) than low response to lack of structure individuals (M = 0, SD = 2.00). In the high opportunity for thought condition, high response to lack of structure individuals exhibited less attitude polarization (M = .22, SD = 2.13) than low response to lack of structure individuals (M = .83, SD = 1.72).

In sum, the results suggest that the two Personal Need for Structure Scale subfactors influenced attitude change and discounting in different ways. Desire for structure seems to influence discounting but does not influence attitude polarization. Response to lack of structure seems to influence attitude polarization but does not influence discounting. In both cases, the pattern of means was the opposite of the expected order.

Ancillary analyses

As mentioned previously, the expected main effect of opportunity for thought on attitude polarization did not materialize. Because several prior studies have found

such an effect, further analyses were conducted to determine whether the absence of this effect was due to a procedural anomaly. The only procedure unique to the present study was the trait influence measure. Because the trait influence scale was introduced to participants *after* the pre- and post-thought impression ratings for the first person description, the attitude change score for this first description could not be influenced by the trait influence measure. Therefore, if the trait influence measure disrupts thought, the expected opportunity for thought effect should appear when only attitude change scores for the first description are considered.

A 2 (opportunity for thought) x 2 (personality difference) ANOVA with first description attitude change as the dependent variable was conducted separately for need for closure, need for structure, and intolerance of ambiguity. Opportunity for thought, alone or in combination with personality measures, did not influence attitude polarization, all $\underline{F}$s $(1, 68) < 1$, all $\underline{p}$s = ns. Apparently, the absence of thought opportunity effects was not simply a product of the trait influence measure.

Discussion

The purpose of the present study was to gain a better understanding of the dispositional and situational variables that influence self-generated attitude change. Typically, attitude polarization becomes more likely as opportunity for thought about an attitude object increases. Prior research suggests that extended thought about a particular object leads one's beliefs about that attitude object to become more evaluatively consistent (see Tesser, 1978); as beliefs become more consistent, attitudes based on those beliefs polarize. This study was not conducted to determine whether or

not a relationship exists between the amount of time provided for thought and attitude change; Tesser and others have consistently demonstrated that such a relationship exists. In fact, care was taken to replicate established procedures for assessing self-generated attitude change to ensure that the thought-induced attitude polarization effects found in past studies would again occur.

Unfortunately, the well-documented self-generated attitude change effect did not materialize in this experiment. The amount of time provided for thought generally did not affect attitude change. Because all hypotheses were based on the assumption that the amount of time provided for thought *would* affect attitude change, this outcome reduces the utility of experimental manipulations designed to reveal the cognitive processes responsible for thought-induced attitude polarization. Before discussing the results of these manipulations, the following question must be answered: What happened to the self-generated attitude effect?

One explanation is that some part of the procedure unexpectedly affected participant thought processes. The only procedural element unique to the present study was the trait influence measure. It could be that asking participants to assess the influence of specific traits caused participants to focus solely on the individual traits in the description during thought, rather than reflecting on the true nature of the hypothetical person they were asked to think about. Participants were asked to use the time provided for thought to expand upon the person description given by thinking about "people you know who fit this description" or the "qualities and traits people like this may have." These instructions encourage participants to think about people in

a relatively unconstrained manner. Perhaps the trait influence measure acted as a thought constraint by leading participants to restrict their thoughts to the four descriptive traits. If a participant's thoughts were focused on traits instead of a specific person, it is unlikely that any thought duration would change the participant's overall attitude toward that person.

Recall that the trait influence scale was introduced to participants *after* the pre- and post-thought overall impression ratings were made for the first person description. If the trait influence measure was the sole reason for the lack of opportunity for thought effects, then the expected opportunity for thought effects should be present when only overall impression ratings for the first person description are considered. An analysis of attitude change for the first person description again found no evidence of opportunity for thought effects. This finding suggests that the trait influence measure is not the only reason, if it is a reason at all, for the absence of self-generated attitude polarization effects.

Another reason for the lack of opportunity for thought effects might be that the inconsistent descriptive traits used were too positive or too negative. Extreme traits were selected to ensure that inconsistent information was perceived as such. Perhaps participants were unable to increase the evaluative consistency of their beliefs during thought because their inconsistent beliefs were too powerful to reinterpret or dismiss. In previous self-generated attitude change studies that have used adjectives as descriptive information, the traits used to convey inconsistent or ambiguous information were less extreme than the traits used in the present study (e.g., Tesser &

Cowan, 1975, 1977). Unfortunately, it is impossible to determine the impact of trait extremity in the present study because only extreme traits were used.

One final explanation for the absence of expected effects is simply that the sample of participants differed in some way from the samples studied in previous self-generated attitude change research. All participants were taking classes in either social psychology or personality theories. Perhaps the material covered in these classes led students to be unusually curious or suspicious about the nature of the study, thereby making it difficult for them to concentrate during the allotted time for thought. In any case, there is no way to determine conclusively whether the sample was the source of the problem.

The present study considers the possibility that inconsistency discounting is one of the thought processes that produce increased belief consistency and, by extension, attitude polarization. It was hypothesized that more inconsistency discounting would occur when the time provided for thought was longer, rather than shorter. It was also hypothesized that individuals with high need for closure, high need for structure, and/or high intolerance of ambiguity would be particularly likely to discount inconsistent information when the time provided for thought was longer, rather than shorter.

The results did not support these hypotheses. Differential opportunity for thought, need for closure, need for structure, and intolerance of ambiguity did not influence discounting in any reliable manner. Clearly, the results did not support the reasoning behind the inclusion of the selected personality measures.

However, some indirect evidence for this expected relationship between attitude polarization and discounting was obtained. Attitude polarization scores and discounting scores were significantly correlated in the high opportunity for thought condition. Given ample opportunity for thought, individuals who exhibited attitude polarization also tended to exhibit discounting and vice versa. In the low opportunity for thought condition, the correlation between attitude polarization and discounting was too weak to be reliable. This discovery is particularly interesting in light of the finding that scores for both discounting and attitude change did not differ as a function of opportunity for thought. The explanation preferred here is that the cognitive consequences of discounting (in this case, attitude polarization) are somewhat delayed. In other words, belief discounting may occur quickly but the attitudinal impact of discounting takes more time.

The results of this study did not verify the expected effects of need for closure, need for structure, and intolerance of ambiguity on attitude change and discounting. However, the results did confirm the existence and relevance of an under-explored personality dimension: initial attitude extremity. Thought-induced attitude polarization was more likely for individuals who gave extreme initial overall impression ratings. Furthermore, this initial attitude extremity effect did not differ with varied opportunity for thought. The lack of interaction between initial attitude extremity and opportunity for thought distinguishes initial attitude extremity from the other personality factors known to influence self-generated attitude change: dogmatism, need for cognition, and objectivism (Leone, 1989, 1994, 1996). In all past investigations of personality factor

influences on self-generated attitude change, personality influences depended on the amount of time provided for thought. Apparently, this initial attitude extremity effect was not a function of the same slow-moving cognitive processes that produce self-generated attitude polarization effects. What is the nature of this initial attitude extremity effect?

It is possible that ceiling effects are the reason why intially extreme people would show more attitude polarization following thought. Recall that each of the person descriptions selected for a second impression rating was initially rated moderately positively (usually +4) or negatively (usually -4). Of course, a rating of 4 might be moderate for some and not so moderate for others. For individuals who tend to give conservative initial impression ratings, a rating of +4 or -4 might represent a highly polarized attitude. Such individuals may not demonstrate attitude polarization following thought because their initial attitudes were already at the highest possible level of polarization. For individuals who tend to give extreme initial impression ratings, a rating of +4 or -4 might represent a moderate attitude. An initially moderate attitude leaves room for attitude polarization.

Alternatively, the initial attitude extremity effect may reflect dispositional differences in self-confidence. Highly self-confident persons may be more likely than persons lacking self-confidence to trust their own evaluative ability; this evaluative confidence might manifest itself in extreme initial impression ratings. Persons with less self-confidence might be less willing to provide extreme evaluations because they do not fully trust their own evaluative skills. Some participants might regard the post-

thought impression rating task as a challenge to their evaluative instincts. If this were the case, highly self-confident persons might provide post-thought evaluations that were more extreme than their pre-thought evaluations as a reaction to this questioning of their evaluative ability. Individuals with less self-confidence should not feel so compelled to defend their initial judgment when questioned in this manner.[2]

Directions for future research

Is the self-generated attitude polarization phenomenon produced in part by the discounting of inconsistent information during thought? If so, does the relationship between discounting and self-generated attitude change depend on personality characteristics? Further research is needed to answer these questions. Before these questions can again be addressed, the elements that prevented the expected thought-induced attitude polarization effects in the present study must be identified and avoided.

As discussed earlier, several possible explanations exist for the failure to obtain self-generated attitude polarization. One possibility is that the early introduction of the trait influence measure influenced subsequent thought processes. This problem might be solved if all overall impression ratings (both pre- and post-thought) were completed prior to the introduction of the trait influence scale. Unfortunately, such an approach might also prove problematic because of the lengthy time delay between post-thought impression ratings and the influence ratings of the traits on which the impressions were based. By the time a participant is asked to rate how much individual traits influenced their previously expressed attitudes, it is quite possible that the thoughts that led to those previously expressed attitudes would be all but forgotten. It is unclear what the

effects of this time delay might be; in previous impression formation studies using trait-based person descriptions, discounting was measured immediately following impression ratings (e.g., Anderson & Jacobson, 1965; Hendrick & Costantini, 1970; Kaplan, 1973).

It is also possible that self-generated attitude polarization effects did not occur because the descriptive traits and the inconsistencies produced by those traits were too extreme. To investigate this possibility, future researchers could present participants with trait groupings of varying extremity so that the attitudes based on extreme traits could be compared with attitudes based on more moderate traits. Researchers using this expanded design would need to make sure that the inconsistent traits in moderately extreme trait groupings were actually perceived to be inconsistent by participants.

It would be premature to alter or abandon the hypotheses and procedures of the present study beyond the experimental modifications suggested above. Because the opportunity for thought manipulation failed in the present study, the results of the present study are largely inconclusive. However, these results do highlight the situational sensitivity of self-generated attitude change. Self-generated attitude polarization is a trend, not a rule; the conditions required to produce self-generated attitude polarization effects are somewhat restrictive. Perhaps the present study, in combination with future research, will ultimately provide more information about the conditions needed to produce self-generated attitude polarization.

Footnotes

[1] A 6-point scale is normally used for responses to the Need for Closure, Personal Need for Structure, and Intolerance of Ambiguity Scales. To facilitate coding, a 5-point, Scantron-friendly response scale was used in the present study.

[2] It is also possible that it was not self-confidence but rather the desire to appear self-confident that produced these initial attitude extremity effects. In either case, the behavioral consequences should be the same.

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